

CLAIMS:-

1. An isolated antigenic *Porphyromonas gingivalis* polypeptide, the polypeptide comprising:
an amino acid sequence selected from the group consisting of SEQ. ID. NO. 265 to SEQ. ID. NO. 528, SEQ. ID. NO. 531 and SEQ. ID. NO. 532; or
an amino acid sequence at least 85%, preferably at least 95%, identical to an amino acid sequence selected from the group consisting of SEQ. ID. NO. 265 to SEQ. ID. NO. 528, SEQ. ID. NO. 531 and SEQ. ID. NO. 532; or
at least 40 amino acids having a contiguous sequence of at least 40 amino acids identical to a contiguous amino acid sequence selected from the group consisting of SEQ. ID. NO. 265 to SEQ. ID. NO. 528, SEQ. ID. NO. 531 and SEQ. ID. NO. 532.
2. A polypeptide as claimed in claim 1 in which the polypeptide comprises an amino acid sequence selected from the group consisting of SEQ. ID. NO. 265 to SEQ. ID. NO. 528, SEQ. ID. NO. 531 and SEQ. ID. NO. 532.
3. A polypeptide as claimed in claim 1 in which the polypeptide comprises an amino acid sequence at least 85%, preferably at least 95%, identical to an amino acid sequence selected from the group consisting of SEQ. ID. NO. 265 to SEQ. ID. NO. 528, SEQ. ID. NO. 531 and SEQ. ID. NO. 532.
4. A polypeptide as claimed in claim 1 in which the polypeptide comprises at least 40 amino acids having a contiguous sequence of at least 40 amino acids identical to a contiguous amino acid sequence selected from the group consisting of SEQ. ID. NO. 265 to SEQ. ID. NO. 528, SEQ. ID. NO. 531 and SEQ. ID. NO. 532.
5. A polypeptide as claimed in claim 1 in which the polypeptide comprises;
an amino acid sequence selected from the group consisting of SEQ. ID. NO. 386 to SEQ. ID. NO. 528 and SEQ. ID. NO. 532; or
an amino acid sequence at least 85%, preferably at least 95%, identical to an amino acid sequence selected from the group consisting of SEQ. ID. NO. 386 to SEQ. ID. NO. 528 and SEQ. ID. NO. 532; or

at least 40 amino acids having a contiguous sequence of at least 40 amino acids identical to a contiguous amino acid sequence selected from the group consisting of SEQ. ID. NO. 386 to SEQ. ID. NO. 528 and SEQ. ID. NO. 532.

- 5 6. A polypeptide as claimed in claim 1 in which the polypeptide comprises an amino acid sequence selected from the group consisting of SEQ. ID. NO. 386 to SEQ. ID. NO. 528 and SEQ. ID. NO. 532.
7. A polypeptide as claimed in claim 1 in which the polypeptide comprises an amino acid sequence at least 85%, preferably at least 95%,
10 identical to an amino acid sequence selected from the group consisting of SEQ. ID. NO. 386 to SEQ. ID. NO. 528 and SEQ. ID. NO. 532.
8. A polypeptide as claimed in claim 1 in which the polypeptide comprises at least 40 amino acids having a contiguous sequence of at least 40 amino acids identical to a contiguous amino acid sequence selected from the
15 group consisting of SEQ. ID. NO. 386 to SEQ. ID. NO. 528 and SEQ. ID. NO. 532.
9. A polypeptide as claimed in claim 6 in which the polypeptide comprises an amino acid sequence selected from the group consisting of
20 SEQ. ID. NO. 386, SEQ. ID. NO. 424, SEQ. ID. NO. 425, SEQ. ID. NO. 434, SEQ. ID. NO. 447, SEQ. ID. NO. 458, SEQ. ID. NO. 475, SEQ. ID. NO. 498, SEQ. ID. NO. 499, SEQ. ID. NO. 500, SEQ. ID. NO. 501, SEQ. ID. NO. 387, SEQ. ID. NO. 400, SEQ. ID. NO. 411, SEQ. ID. NO. 419, SEQ. ID. NO. 420, SEQ. ID. NO. 427, SEQ. ID. NO. 429, SEQ. ID. NO. 433, SEQ. ID. NO. 437, SEQ. ID. NO. 438, SEQ. ID. NO. 443, SEQ. ID. NO. 444, SEQ. ID. NO. 448,
25 SEQ. ID. NO. 449, SEQ. ID. NO. 452, SEQ. ID. NO. 455, SEQ. ID. NO. 457, SEQ. ID. NO. 459, SEQ. ID. NO. 461, SEQ. ID. NO. 462, SEQ. ID. NO. 463, SEQ. ID. NO. 467, SEQ. ID. NO. 468, SEQ. ID. NO. 469, SEQ. ID. NO. 482, SEQ. ID. NO. 484, SEQ. ID. NO. 485, SEQ. ID. NO. 494, SEQ. ID. NO. 508, SEQ. ID. NO. 509, SEQ. ID. NO. 510, SEQ. ID. NO. 520, SEQ. ID. NO. 521,
30 SEQ. ID. NO. 522, SEQ. ID. NO. 525, SEQ. ID. NO. 526, SEQ. ID. NO. 528, SEQ. ID. NO. 389, SEQ. ID. NO. 390 and SEQ. ID. NO. 391.
10. An isolated antigenic *Porphorymonas gingivalis* polypeptide, the polypeptide comprising an amino acid sequence selected from the group consisting of SEQ. ID. NO. 386 to SEQ. ID. NO. 528 and SEQ. ID. NO. 532
35 less the leader sequence set out in Table 3.

11. An isolated DNA molecule, the DNA molecule comprising a nucleotide sequence which encodes the polypeptide as claimed in ^{claim 1} ~~any one of claims 1 to 10~~ or a sequence which hybridises thereto under conditions of high stringency.
- 5 12. An isolated DNA molecule as claimed in claim 11 in which the DNA molecule comprises a nucleotide sequence selected from the group consisting of SEQ. ID. NO. 1 to SEQ. ID. NO. 264, SEQ. ID. NO. 529 and SEQ. ID. NO. 530.
- 10 13. A recombinant expression vector comprising the DNA molecule as claimed in claim 11 ~~or claim 12~~ operably linked to a transcription regulatory element.
14. A cell comprising the recombinant expression vector as claimed in claim 13.
- 15 15. A method for producing a *P. gingivalis* polypeptide comprising culturing the cell as claimed in claim 14 under conditions that permit expression of the polypeptide.
16. A composition for use in raising an immune response directed against *P. gingivalis* in a subject, the composition comprising an effective amount of at least one polypeptide as claimed in ^{claim 1} ~~any one of claims 1 to 10~~ and a pharmaceutically acceptable carrier.
- 20 17. A composition as claimed in claim 16 in which the composition further comprises at least one DNA molecule as ^{defined above} ~~claimed in claim 11 or claim 12~~.
18. A composition as claimed in claim 16 ~~or claim 17~~ in which the pharmaceutically acceptable carrier is an adjuvant.
- 25 19. A method of treating a subject for *P. gingivalis* infection comprising administering to the subject a composition as claimed in ^{claim 16} ~~any one of claims 16 or claim 18~~ such that treatment of *P. gingivalis* infection occurs.
20. A method as claimed in claim 19, wherein the treatment is a prophylactic treatment.
- 30 21. A method as claimed in claim 19, wherein the treatment is a therapeutic treatment.
22. A composition for use in raising an immune response directed against *P. gingivalis* in a subject, the composition comprising an effective amount of at least one DNA molecule as claimed in claim 11 ~~or claim 12~~ and a pharmaceutically acceptable carrier.
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23. A composition as claimed in claim 22 in which the pharmaceutically acceptable carrier is an adjuvant.
24. A method of treating a subject for *P. gingivalis* infection comprising administering to the subject a composition as claimed in claim 22 ~~or claim 23~~ such that treatment of *P. gingivalis* infection occurs.
25. A method as claimed in claim 24, wherein the treatment is a prophylactic treatment.
26. A method as claimed in claim 24, wherein the treatment is a therapeutic treatment.
- 10 27. An antibody raised against a polypeptide as claimed ^{in claim 1} ~~in any one of claims 1 to 10~~.
28. An antibody as claimed in claim 27 in which the antibody is polyclonal.
29. An antibody as claimed in claim 27 in which the antibody is
- 15 monoclonal.
30. A composition comprising at least one antibody as claimed ^{claim 27} ~~in any one of claims 27 to 29~~.
31. A composition as claimed in claim 30 in which the composition adapted for oral use.
- 20 32. A nucleotide probe comprising at least 18 nucleotides and having a contiguous sequence of at least 18 nucleotides identical to a contiguous nucleotide sequence selected from the group consisting of SEQ. ID. NO. 1 to SEQ. ID. NO. 121, SEQ. ID. NO. 529 and sequences complementary thereto.
33. A nucleotide probe as claimed in claim 32 in which the probe further
- 25 comprises a detectable label.
34. A method for detecting the presence of *P. gingivalis* nucleic acid in a sample comprising:
- (a) contacting a sample with the nucleotide probe as claimed in claim 32 ~~or claim 33~~ under conditions in which a hybrid can form between the probe and a *P. gingivalis* nucleic acid in the sample; and
- 30 (b) detecting the hybrid formed in step (a), wherein detection of a hybrid indicates the presence of a *P. gingivalis* nucleic acid in the sample.